Vol. XXI.—No. 123] [December, 1928.

THE

MINERALOGICAL MAGAZINE

AND

Journal of

The Mineralogical Society

(*INSTITUTED FEBRUARY 8, 1876.*)

WITH A SEPARATELY-PAGED APPENDIX OF

MINERALOGICAL ABSTRACTS

EDITED BY L. J. SPENCER, F.R.S.

ABSTRACTORS

F. N. ASHCROFT.
F. A. BANNISTER.
H. E. BUCKLEY.
P. N. CHIRVINSKY.
T. CROOK.
A. F. HALLIMOND.
HAROLD HILTON.
E. D. MOUNTAIN.
A. L. PARSONS.
G. T. PRIOR.
W. A. RICHARDSON.
S. J. SHAND.
F. SLAVÍK.
W. CAMPBELL SMITH.
L. J. SPENCER.
K. ZIMÁNYI.

LONDON:
HUMPHREY MILFORD, OXFORD UNIVERSITY PRESS,
AMEN HOUSE, WARWICK SQUARE, E.C. 4.

1928.

Price 6s. net.
Annual Subscription for four numbers, Post free 20s.

MINERALOGICAL SOCIETY

Officers and Council for 1928–29.

PRESIDENT.

G. T. Prior, M.A., D.Sc., F.R.S.

PAST-PRESIDENTS.

Sir Henry A. Miers, M.A., D.Sc., LL.D., F.R.S. (1904–1909).
A. E. H. Tutton, M.A., D.Sc., F.R.S. (1912–1915).
W. Barlow, F.R.S. (1915–1918).
Prof. A. Hutchinson, O.B.E., M.A., Ph.D., F.R.S. (1921–24).
Prof. W. W. Watts, M.A., M.Sc., Sc.D., LL.D., F.R.S. (1924–27).

VICE-PRESIDENTS.

Sir J. S. Flett, K.B.E., M.A., LL.D., D.Sc., F.R.S.
J. W. Evans, C.B.E., LL.B., D.Sc., F.R.S.

TREASURER.

F. N. Ashcroft, M.A., F.G.S., F.C.S., 1 *Egerton Gardens, South Kensington, London, S.W.* 3.

GENERAL SECRETARY.

W. Campbell Smith, M.C., M.A., F.G.S., *Natural History Museum, South Kensington, London, S.W.* 7.

FOREIGN SECRETARY.

J. W. Evans, C.B.E., LL.B., D.Sc., F.R.S., *Imperial College of Science and Technology, South Kensington, London, S.W.* 7.

EDITOR OF THE JOURNAL.

L. J. Spencer, M.A., Sc.D., F.R.S., *Natural History Museum, South Kensington, London, S.W.* 7.

TRUSTEES.

F. N. Ashcroft, M.A., F.G.S., F.C.S.
Sir Henry A. Miers, M.A., D.Sc., LL.D., F.R.S.

ORDINARY MEMBERS OF COUNCIL.

Col. N. T. Belaiew, C.B., F.C.S.
Prof. H. L. Bowman, M.A., D.Sc., F.G.S.
A. J. Bull, M.Sc., F.Inst.P., F.G.S.
H. Collingridge, B.Sc., F.G.S.
Prof. C. G. Cullis, D.Sc., F.G.S.
Henry Dewey, F.G.S.
Prof. W. T. Gordon, M.A., D.Sc., F.R.S.E.
H. F. Harwood, M.Sc., Ph.D., A.I.C.
Prof. Harold Hilton, M.A., D.Sc.
Prof. Arthur Holmes, D.Sc., F.G.S.
W. F. P. McLintock, D.Sc., F.G.S.
G. F. Herbert Smith, M.A., D.Sc., F.G.S.

LIBRARIAN.

Prof. A. Hutchinson, M.A., Ph.D., F.R.S., *The New Museums, Cambridge* (to which address all publications intended for the Library of the Society should be forwarded).

Bankers.—Messrs. Coutts & Co., 15 *Lombard Street, London, E.C.* 3.

[ADVERTISEMENT SHEET]

BULLETIN SUISSE

DE

MINÉRALOGIE ET PÉTROGRAPHIE

Published by the Mineralogical and Petrographical Society of Switzerland. Numbers are issued semi-annually and contain about 200 pages. Among the contributors are all Swiss mineralogists and petrographers and the mineralogical institutes of the Swiss Universities. The papers cover the whole field of crystallography, mineralogy, and petrography, with special reference to the Alps.

Subscription Rates.

Free to members of the Mineralogical and Petrographical Society of Switzerland (annual subscription to the Society 20 frs., applications for membership to be addressed to Prof. J. JAKOB, Mineralogical Institute, Sonneggstrasse 5, Zürich 6). Subscriptions for non-members (two issues) 25 frs. Remittances to be addressed to

Messrs. LEEMANN & Co., A.G., Stockerstrasse, Zürich 2.

Back numbers, so far as still available, can be procured from the publishing company.

MINERALS OF ALL COUNTRIES

At present very good Bavarian and African Localities.
SELECTED LOOSE CRYSTALS PRECIOUS STONES
I will send you on approval the best specimens of my great stock. Exchange welcome. Postage free against free return.

DIPL.-ING. WILLY HIRSCH
Mineralogisches Institut
FÜRSTENSTRASSE 22, MUNICH (GERMANY)

[ADVERTISEMENT SHEET]

Second Edition, 1928

MINERALOGY

An Introduction to the Study of Minerals and Crysta

BY

EDWARD H. KRAUS

Professor of Crystallography and Mineralogy and Director of the Mineralogical Laboratory, University of Michigan

AND

WALTER F. HUNT

Professor of Petrology, University of Michigan

Second edition, revised and enlarged
604 *pages*, 6 × 9, 766 *illustrations*

A thorough revision of this widely-known text-book.

The book includes all that the student of general mineralogy needs know about minerals and crystals.

Eleven points about the book:—

1. The book is based upon long experience in teaching large classes of beginning students.
2. It is unusually well illustrated with a total of 766 cuts. Photographs of crystal models extensively used to supplement line drawings. Numerous photographs of minerals and mining localities are included.
3. It presents many photographs and brief biographical sketches of distinguished mineralogists.
4. It includes an interesting chapter on gems and precious stones.
5. It discusses modern ideas of crystal structure and X-ray analysis.
6. It considers fully the production and use of economic minerals.
7. It treats of the place of mineralogy in modern civilization.
8. It is especially designed as a text for lecture and classroom and for laboratory work.
9. It presents concisely but clearly the essentials of optical crystallography.
10. It describes 150 of the most important minerals and gives tables for their identification by means of their physical properties.
11. It offers an excellent chapter on blow-pipe methods, including characteristic dry and wet reactions of the various elements.

Chapter Headings

1. Introduction.
2. Crystallography.
3. Cubic System.
4. Hexagonal System.
5. Tetragonal System.
6. Orthorhombic System.
7. Monoclinic System.
8. Triclinic System.
9. Compound Crystals.
10. Physical Properties.
11. The Polarizing Microscope.
12. Crystal Structure and X-ray Analysis.
13. Chemical Properties.
14. Formation and Occurrence of Minerals.
15. Qualitative Blow-pipe Methods.
16. Descriptive Mineralogy.
17. Gemsand Precious Stones.
18. Classification of Minerals according to Elements.

Glossary.

Tabular Classification of the Thirty-two Classes of Symmetry.

Tables for the Determination of Minerals.

Price 25/- post paid

*** *Write for Catalogue No. 7 for full details of other books on Mineralogy, Crystallography, Geology,*

McGraw-Hill Publishing Co. Ltd., 6 & 8 Bouverie St., London, E.C

[2]

KRAUS AND HOLDEN'S

GEMS AND GEM MATERIALS

BY

EDWARD H. KRAUS

Professor of Crystallography and Mineralogy and Director of Mineralogical Laboratory
University of Michigan

AND

EDWARD F. HOLDEN

Late Instructor in Mineralogy, University of Michigan

222 *pages*, 6 × 9, 256 *illustrations*

This book gives a comprehensive treatment of the forms, properties, formation, occurrence, and characteristics of gems and gem materials.

It describes practically every commercially important gem and gem material, classifies the materials according to various properties, includes tables of comparative gem and gem material characteristics and gives latest information available on manufactured stones.

Complete data on all commercially important gem materials

Sixty minerals used as gems are described thoroughly; other materials such as pearl, coral, amber, jet, are covered as well, and complete descriptions of the better and lesser known precious and semi-precious stones are given in detail.

Up-to-the-minute information about precious stones—semi-precious—ornamental—manufactured

The first part of the book discusses those properties which are necessary for an appreciative understanding of gems, such as crystal forms, physical, optical and chemical properties, formation, occurrence, cutting, polishing, and naming of gems. Chapter IX, on Manufactured Stones, gives the latest information on imitation stones, treated stones, and synthetic stones. This one chapter is in itself worth the cost of the entire book.

The second part of the book includes numerous tables of gem properties, conveniently arranged, and a Summary Table of all gems and gem materials covered in the book.

Six features of special interest to you

1. Valuable statistics on production and occurrence.
2. Excellent map showing world occurrences of gem minerals.
3. Full discussion of cutting and polishing of gems.
4. Full treatment of manufactured stones, including detailed discussions of artificial rubies and sapphires, glass imitations, bakelite, &c.
5. Numerous tables of gems arranged according to various properties.
6. Summary Table for ready reference.

Chapter Headings

I.—Introduction. Part I.—II. Crystal Forms. III.—Physical Properties. IV.—Optical Properties. V.—Chemical Properties. VI.—Formation and Occurrence of Gem Minerals. VII.—Cutting and Polishing of Gems. VIII.—The Naming of Gems. IX.—Manufactured Stones. Part II.—(*a*) Description of Individual Gems; (*b*) Classification of Gem Materials according to Various Properties.

TABLES

I.—Crystal Form.
II.—Hardness.
III.—Specific Gravity.
IV.—Colour.
V.—Miscellaneous Physical Properties.
VI.—Optical Character.
VII.—Mean Index of Refraction and Birefringence.
VIII.—Dispersion.
IX.—Pleochroism.
X.—Composition.
XI.—Summary of the Properties of Gem Materials described in the Text arranged Alphabetically for Ready Reference.

Price 15/-

McGraw-Hill Publishing Co. Ltd., 6 & 8 Bouverie St., London, E.C.4

ANALYSES OF ROCKS & MINERALS

Investigation of Thin Sections

Laboratory of Dr. Ch. WILLMANN, Geologist

40 Hildastrasse, Freiburg in Baden, (Germany)

MACMILLAN

STRATIGRAPHICAL PALAEONTOLOGY. A Manual for Students and Field Geologists. By E. NEAVERSON, D.Sc., Demonstrator and Lecturer in Palaeontology, University of Liverpool. Illustrated. 18*s.* net.

This is the first book to combine a full summary of the results of the work of the last two or three decades in distinguishing geological strata by the characteristic fossils they contain, with the provision of means for identifying, by accurate line and half-tone illustrations of some 500 different kinds, a considerable number of the fossils referred to.

THE GEOLOGY OF MALAYAN ORE-DEPOSITS. By J. B. SCRIVENOR, M.A., F.G.S., Geologist to the Federated Malay States Government and formerly of H.M. Geological Survey of the United Kingdom. Illustrated. 16*s.* net.

The Mining Magazine.—'Mr. Scrivenor has given us in a clearly and pleasantly written book a comprehensive survey of the subject to which he has been the chief contributor. It not only embodies a considerable store of information of scientific and economic interest, but it is enlivened at intervals by interesting scraps of local history, personal experiences, and quaint Chinese and Malayan superstitions.'

*** *Send for Macmillan's Classified Catalogue, post free on application.*

MACMILLAN & CO., LTD., LONDON, W.C. 2

MINERALS FOR ALL PURPOSES

FINE SERIES OF METEORITES

CRYSTALS

ROCK-FORMING MINERALS

JAMES R. GREGORY & Co.

30 CHURCH STREET, CHELSEA, S.W. 3

Late of 139 FULHAM ROAD, S.W. 3

MINERALS — ROCKS

SINGLE SPECIMENS AND COLLECTIONS

Exceptionally good specimens and Museum specimens will be sent on approval to Public Institutions and well-known private collectors. Send us your list of desiderata.

Dr. F. KRANTZ

Rheinisches Mineralien-Kontor

BONN, Germany Herwarthstr. 36

Founded 1833

MINERALIA

FOSSILS ROCKS PRECIOUS STONES

for Museums and Private Collections

SPECIMENS FOR ORE STRATIGRAPHY

ANALYSING MATERIALS GEOLOGISTS' HAMMERS

Sold, Purchased, and Exchanged by

DIPL.-ING. W. MAUCHER

MÜNCHEN, BAYERN. SCHELLINGSTRASSE 73

INDEX TO VOL. XXI

[See also List of new mineral names (p. 556). Only the main items are here indexed; for fuller details see Index to Mineralogical Abstracts, vol. 3.]

Alkali metals, atomic volumes, 278
— -earth metals, atomic volumes, 480
— -lavas, Armenia, 485
Allopalladium, 405
Anatase in Dartmoor granite, 205
Andrew (G.), elected member, xxxvii
Anglesite, Cornwall, 225
Annual Report of Council, xxix, xl, lii
Aplite, Cornwall, 291
Aramayoite, new min., 156
— X-ray examination, 163
Atomic volumes in isomorphous series, 277, 480

Baddeleyite, cryst.-struct., 169
Balance sheet, xxx, xliii, liv
Bally-Prior (E.), obituary, 229
Bannister, (F. A.), elected member, l
Basalt, Derbyshire, 73
Bauhans (H.), obituary, 230
Baumhauer (H.), obituary, 230
Bauxite and laterite, 407
Becke method, optic axial angle, 552
Beraunite, Ireland, 272
Berthierite, chem., 83
Binks (W.), cryst.-struct. zircon, 176
Biographical notices, 222
Biotite-bearing greenstone, Cornwall, 436
Bodmin Moor granite, 285
Boswell (P. G. H.), Purple zircon in sediments, 310
Boubée (N.), elected member, xlix
Bowen (N. L.), elected member, xlvii
Brammall (A.), Gold and silver in Dartmoor granite, 14
— & Harwood (H. F.), Temperature-range of formation for tourmaline, rutile, brookite, and anatase in the Dartmoor granite, 205
British Mineralogical Society (1799–1806), 108
— minerals, 14, 47, 73, 124, 128, 205, 221, 272, 285, 310, 366, 383, 419, 436, 489, 493, 543
Brookite in Dartmoor granite, 205
Brooks (A. H.), obituary, 231
Buckley (H. E.), Anomalous optical properties in double tartrates, 55
Burri (C. R.), elected member, xxxix
Bye-laws, vii, 110

Campbell (R.), elected member, xxvi
Canfield (F. A.), obituary, 231
Cerussite, Cornwall, 227
Chemical analysis of rocks, 318
Chlorites, Derbyshire, 73
Cobija meteorite, 87
Coke (B. E.), elected member, xlix
Collingridge (H.), Optic axial angle, Becke method, 552
Corundum twins, Transvaal, 329
Crystalline schists, mineralogical transformations, 34
Crystallological Society, 115
Crystal-structure, aramayoite, 163
— baddeleyite, 169
— glyoxaline compounds, 1
— Tetra-ethyl-ammonium iodide, 265
— Tetra-methyl-ammonium iodide, 261
— zircon, 176
— zirconia, 169

Dartmoor granite, 14, 205, 492
Davis (G. M.), elected member, xxxv
Delessite, Derbyshire, 77
Dewey (H.), elected member, xxiv
Dick (A. B.), obituary, 232
Dikes and Whin sill, N. England, 493
Dissociation of dolomite, 21
Dolerite, quartz-, Whin sill, 493
Dolomite, dissociation, 21
Double (I. S.), elected member, xxv
Drugman (J.), β-quartz twins, Cornwall, 366
Dubyansky (V. V.), obituary, 233
Dumortierite as grains, opt., 489
— in granite, Cornwall, 491
Dwerryhouse (A. R.), elected member, xxvii

Eckermann (H. v.), elect. memb., xxxix
Elles (G. L.), elected member, xlix
Ellsworth (H. V.), elect. memb., xxvi
— Constant-volume pyknometer, 431
Europe, central, place-names of mineral-localities, 441
Eutropic series, 279

Fearnsides (W. G.), elected member, xxxvi
Fedorov universal stage method, 543
Fluorescence of zinc ores, 394
Ford (H. A.), elected member, xxxv

Garnet in metamorphic rocks, 47
Garnett (C. S.), Dissociation of dolomite, 21
Geikie (A.), obituary, 234
Geographical terms, glossary, 445
Ghosh (P. K.), Bodmin moor granite, 285
— biotite-bearing greenstones; rhyolitic pumice, 436
Glegg (E. L. G.), elect. memb., xlviii
Glyoxaline compounds, cryst.-struct., 1
Gold in Dartmoor granite, 14
Goniometer, X-ray, 1
Granite, Bodmin Moor, 285
— Dartmoor, 14, 205
— gold and silver in, 14
— rock inclusions, 300
— temperature of formation, 205
Greenstones, Cornwall, 436
Greenwood (G.), X-ray goniometer; glyoxaline compounds, 1
— Rotating crystal X-ray photographs, 258
Groves (A. W.), Dumortierite, 489

Hallimond (A. F.), Chem. classif. mica group, 25
— Micas, molecular volumes, 195
— Atomic volumes in isomorphous series, 277, 480
Harrison (J. B.), Potarite, 398
— obituary, 234
Harwood (H. F.) *v.* Brammall (A.), 205
— *v.* Holmes (A.), 493
— *v.* Holt (E. V.), 318
Hillebrand (W. F.), obituary, 235
Hitchen (C. S.), elected member, xlix
Holden (E. F.), obituary, 236
Holmes (A.) & Harwood (H. F.), Whin sill and dikes, 493
Holt (E. V.) & Harwood (H. F.), separation of manganese in rock analysis, 318
Horn (A. E.), elected member, xxvi
Hornfels, Cornwall, 301
Hovey (E. O.), obituary, 237
Hutchinson (A.), Stereographic protractor for Laue crystal-photographs, 10
— Northern excursion, 128
— Paralaurionite, 223

Isograde assemblages of minerals, 35
Isomorphous series, atomic volumes, 277, 480

Johnston (R. A. A.), elect. memb., xxvi

Katzer (F.), obituary, 238
Kemp (J. F.), obituary, 238
Krantz (F.), obituary, 239
Krejčí (A.), obituary, 240
Kreutz (S.), elected member, xxxix
Krishnan (M. S.), elect. memb., xxxix
Kupffer (A. E.), obituary, 240

Labradorite, optics, 543
Lampa meteorite, 87
Laterite and bauxite, 407
Lateritization, artificial, 411
Laurionite, Cornwall, 221
Lehmann (J. G.), obituary, 241
Lewis (W. J.), obit., bibliogr., 241
Library, xxvi, xxviii
Liveing (G. D.), obituary, 244
Lumb (A. D.), elected member, xxvii

Maclaren (J. M.), elect. memb., xxvi
Manganese, separation in rock analysis, 318
Marshall (P.), elected member, xxvi
Martin (D. S.), obituary, 245
Mathews (C.), elected member, xlix
Members, list of, xi
Metamorphic rocks, 34, 47
Meteorites, Cobija and Lampa, 87
— Queens Mercy, 188
— Vaalbult, 188
— Witklip, 188
Meunier (S.), obituary, 245
Micas, chem. classif., 25
— in cryst. schists, 38
— molecular volumes, 195
Miller (W. G.), obituary, 246
Mineral localities, central Europe, 441
— names, new, 556
Mineralogical Society, Jubilee, 99
— History, 106
— Honorary Members, 146
— Officers, 111, 144
Molecular volumes, micas, 195
Mountain (E. D.), Smithsonite, Rhodesia, 55
— Cobija and Lampa meteorites, 87
— analyses by, 149, 156
Murgoci (G.), obituary, 247

Nadorite, Cornwall, 272
New mineral names, 556
Niccolite, Northumberland, 383

Obituaries, 229
Ogura (T.), elected member, xlviii
Olivine, opt., 552
Optic axial angle, Becke method, 552
Optical anomalies in double tartrates, 55

Optical determination of plagioclase, Fedorov method, 543

Palache (C.), elected member, xxxix
Palladium mercuride, 398
Pantellerite, Armenia, 486
Paralaurionite, Cornwall, 223
Peck (F. B.), obituary, 248
Petrology, 34, 47, 73, 436, 485, 493
Phemister (T. C.), elected member, xxxvi
Phillips (F. C.), elect. memb., xxxvii
Phosgenite, Cornwall, 224
Place-names, central Europe, 441
Poni (P.), obituary, 248
Postlethwaite (J.), obituary, 249
Potarite, British Guiana, 398
Prior (G. T.), South African meteorites, 188
— Alkali lavas, Mt. Nimrud, Armenia, 485
Pufahl (O.), obituary, 249
Pumpelly (R.), obituary, 250
Pyknometer, silica-glass, 431
Pyromorphite, Cornwall, 227
Pyroxenes in Whin sill, 503

Quartz, β-, twins, 366
Queens Mercy meteorite, 188

Rao (T. V. M.), Bauxite, 407
Refractometer, Tully, 324
Rhyolite, soda-, Armenia, 486
Rhyolitic pumice, Cornwall, 438
Rock analysis, manganese, 318
— series, isochemical, 36
Roebling (W. A.), obituary, 250
Russell (A.), Southern excursion, 124
— Laurionite, Cornwall, 221
— Nadorite, Cornwall ; beraunite, Ireland, 272
— Niccolite and ullmannite, Northumberland ; serpierite, Ireland, 383
Rutile in Dartmoor granite, 205

Samoilov (Y. V.), obituary, 251
Schultenite, new min., 149
Sedimentary rocks, purple zircon, 310
Seignette salts, opt., 59
Serpierite, Ireland, 386
Silver in Dartmoor granite, 14
Slavík (F.) & Spencer (L. J.), Place-names of mineral-localities in central Europe, 441
Smith (W. C.), Labradorite, optics, Fedorov method, 543
Smithsonite, opt., chem., 51
Smolař (G.), obituary, 252
Solly (R. H.), obituary, bibliogr., 252
South Africa, minerals, 51, 94, 149, 188, 329, 388
Specific gravities of minerals, 338
— index, 341, 361
— pyknometer, 431
Spencer (E.), elected member, xxvii
Spencer (L. J.), Sperrylite, Transvaal, 94
— Aramayoite, new min., 156
— Schultenite, new min., 149
— Biographical notices, 229
— Corundum twins, Transvaal, 329
— Specific gravities of minerals, 338
— Willemite, South Africa ; fluorescence of zinc minerals, 388
— Potarite, British Guiana, 398
— Eleventh list of new mineral names, 556
— *v.* Slavík (F.), 441
Sperrylite, large crystals, Transvaal, 94
Stereographic protractor for X-ray Laue photographs, 10
Stillwell (F. L.), Berthierite, 83
Storr (W. R.), elected member, l
Stuart (A.), elected member, xxxvii
Swinton (W. E.), elect. memb., xxvi

Tannhäuser (F.), obituary, 254
Tarasenko (V. E.), obituary, 254
Tarr (W. A.), elected member, xxiv
Tartrates, anomalous opt., 55
Temperature range of formation of minerals in granite, 205
Tetra-ethyl-ammonium iodide, cryst.-struct., 265
Tetra-methyl-ammonium iodide, cryst.-struct., 261
Thomson (E.), elected member, xxvi
Tilley (C. E.), Mineralogical transformations in crystalline schists, 34
— Garnet in pelitic contact-zones, 47
Tomkeieff (S. I.), elected member, xxiv
— Chlorites, Derbyshire, 73
Tourmaline in Dartmoor granite, 205
Trachyandesite, Armenia, 488
Transformations in crystalline schists, 34
Traverso (G. B.), obituary, 254
Trechmann (C. T.), elect. memb., xlix
Tschermak (G.), obituary, 257
Tully (B. J.), Refractometer, 324
Twins, flat habit, 335
— of corundum, 329
— β-quartz, 366

Ullmannite, Northumberland, 383
Ultra-violet rays, fluorescence in, 394

Vaalbult meteorite, 188
Vendl (A.), elected member, xxvii

Vendl (M.), elected member, xxvii
Viola (C. M.), obituary, 255
Vulf (G. V.), obituary, 255

Watson (T. L.), obituary, 256
Watts (W. W.), Fifty years' work of the Min. Soc., 106
Weibull (M.), obituary, 256
Wells (H. L.), obituary, 257
Whin sill and dikes, N. England, 493
Willemite, South Africa, 388
Williams (A. F.), elect. memb., xxv
Williamson (E. D.), obituary, 257
Witklip meteorite, 188
Wooldridge (S. W.), elected member, xlvii
Wooster (W. A.), elect. memb., xlviii
Wulff (G.), obituary, 255

X-ray goniometer, 1
— rotating crystal photographs, 258
— stereographic protractor, 10
— *v.* Crystal-structure

Yardley (K.), X-ray, aramayoite, 163
— Structure of baddeleyite and ZrO_2, 169

Zinc ores, fluorescence, 394
Zircon, colour, 311
— cryst.-struct., 176
— purple, in sediments, 310
Zirconia, cryst.-struct., 169

ERRATA AND ADDENDA.

Mineralogical Magazine, vol. 20.

Page.	Line.	
339	17*	*For* Foesstner *read* Foerstner
444	1*	*For* unnecessay *read* unnecessary
449	1–2	*For* William M. Canby (*fl.* 1864–1898) *read* William Marriott Canby (1831–1904)

Mineralogical Magazine, vol. 21.

18	18	*For* 0·00003 *read* 0·00004
—	14*	*For* 0·000007 *read* 0·000008
233	8*	*For* 1927 *read* 1928, vol. 12, pp. 165–168, with portrait
236	7*	*For* 1927, vol. 21 *read* 1928, Biogr. Mem. vol. 12, p. 43
390	—	*Add* (to list of doubtful localities of willemite): Bell's Reward, Whyte River, Tasmania. Heazlewood mine, Heazlewood River, Tasmania. (W. F. Petterd, Catalogue of the Minerals of Tasmania. 2nd edit., 1896, p. 95; 3rd edit., 1910, p. 198.)
391	1	*For* Percy S. Tarbutt *read* Percy C. Tarbutt
425	5*	*For* boemite *read* boehmite
454	13	*For* Rejharitce *read* Rejhartice
456	18*	*For* Baňská tiavnica *read* Baňská Štiavnica
459	7	*For* Žubkov *read* Župkov
466	20	*For* Trient Trento *read* Trento Trient
467	6	*For* part of Carniola *read* parts of Carniola and Carinthia
564	14	*For* Geiger *read* Geijer

* From bottom of page.

PUBLICATIONS

OF THE

MINERALOGICAL SOCIETY

The Publisher is Mr. Humphrey Milford, Oxford University Press, *Amen House, Warwick Square, London, E.C.* 4.

Mineralogical Magazine.—Current Numbers price 6*s.* net each. Annual Subscription for four Numbers post free 20*s.*, payable in advance to the Publisher, either direct or through any bookseller.

Back Numbers.—With the exception of Nos. 17, 18, 19, 21, and 22, which are out of print (and some few numbers of which the stock is low and which are reserved for the sets mentioned below), all numbers can be supplied separately at the following net rates: Nos. 1–48 at 4*s.* each; Nos. 49–111 at 5*s.* each; Nos. 112 (1926) onwards at 6*s.* each. Since 1920 (Vol. XIX) the Numbers have been issued quarterly, and include a separately-paged appendix of *Mineralogical Abstracts.*

Geological Map of the Shetland Islands (separate from Vol. II). Price, 4*s.* mounted, 2*s.* 6*d.* unmounted, net.

General Index to Vols. I–X, 4*s.*; to Vols. XI–XX, 6*s.* net.

Mineralogical Abstracts (Vol. I, Nos. 1–12, 1920–22, issued with Vol. XIX of the Magazine) are also sold separately. Price 2*s.* 6*d.* net each number. Later numbers (Vol. II, 1923–25; Vol. III, 1926–8) are issued only as part of the Magazine.

Bye-Laws and List of Members. Price 1*s.* net.

Part sets at the following reduced rates. Set A.—Vols. I–X (Nos. 1–48, 1876–94, and Index No.) at 4*s.* per number less 15% (to Members of the Society less 35%). Set B.—Vols. XI–XX (Nos. 49–111, 1895–1925, and Index No.) at 5*s.* per number less 15% (to Members less 35%). Set C.—Vols. I–XX (Nos. 1–111 and two Index Nos.) at the above initial prices less 20% (to Members less 40%).

Proceedings of the Crystallological Society [amalgamated with the Mineralogical Society in 1883]. Parts I and II (1877, 1882), price 4*s.* net each.

GENERAL NOTICES

Members desiring to propose Candidates for Election are requested to send the names and qualifications of the Candidates to the General Secretary, W. Campbell Smith, M.C., M.A., F.G.S., *Natural History Museum, South Kensington, London, S.W.* 7. There is an entrance fee of one guinea and the annual subscription is one guinea; the latter can be compounded for by a single payment of fifteen guineas. New Members, on the payment of their first subscription, receive all the numbers of the Magazine for the year for which the subscription is paid.

There are four meetings of the Society each year, on Tuesdays at 5.30 p.m. in January, March, June, and November. They are held (by kind permission) in the Apartments of the Geological Society, Burlington House, Piccadilly, London, W. 1. Titles of papers to be read at these meetings, with a view to subsequent publication in the Magazine, should be sent to the General Secretary at least two weeks before the meeting. Authors alone are responsible for the views set forth in their respective papers. They are allowed, free of charge, fifty separate copies of their papers published in the Magazine.

MINERALOGICAL MAGAZINE

CONTENTS OF NO. 123

(December, 1928)

Title-page, Contents, and Index to Vol. 21.

MINERALOGICAL ABSTRACTS

(No. 12, Pages 557–680)

Title-page, Note, and Indexes to Vol. 3.

INSTRUCTIONS FOR BINDING

Mineralogical Magazine, Vol. 21, includes:

Title-page and Contents, pp. i–vi.
Bye-laws and List of Members, pp. vii–xxiii.
Proceedings of the Mineralogical Society, pp. xxiv–lviii.
Papers read before the Society, pp. 1–582.
Short Index and Errata, pp. 583–586.
Plates I–X.

Mineralogical Abstracts, Vol. 3, includes:

Title-page, Note, and Errata, pp. i–iv.
Abstracts, pp. 1–556.
Topographical Index, pp. 557–576.
Alphabetical Index, pp. 577–680.

Reprinted by lithography and bound in Great Britain
by Jarrold & Sons Ltd., Norwich